

NON-PUBLIC?: N
ACCESSION #: 9503030196
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Indian Point Unit No.2 PAGE: 1 OF 4

DOCKET NUMBER: 05000247

TITLE: Turbine Trip Due to Low Auto Stop Oil Pressure
EVENT DATE: 01/17/95 LER #: 95-001-00 REPORT DATE: 02/16/95

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 89

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Michael A. Whitney, Sr. Engineer TELEPHONE: (914) 734-5131

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: JN COMPONENT: SOL MANUFACTURER: A610
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On January 17, 1995, with the unit operating at 89% power, a turbine trip occurred due to low autostop oil pressure. The turbine trip in turn caused a reactor trip. All automatic actions occurred as expected And the plant responded to the transient as expected with the exception of a greater than expected cooldown of the Reactor Coolant System. Manual operator action was taken to restore pressures, levels and temperatures to expected values. The cause of the low autostop oil pressure was determined to be a solenoid valve which had a degraded pilot seat. Upon completion of a post trip review and a further review by the Station Nuclear Safety Committee, a reactor restart was initiated. On January 19, 1995, during startup with the unit operating at 16% power, a turbine trip occurred due to high steam generator level. This caused an automatic feedwater isolation which includes the automatic actuation of auxiliary feedwater pumps. The cause of the high steam generator level was attributable to operator execution of manual feedwater control.

END OF ABSTRACT

TEXT PAGE 2 OF 4

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Turbine Trip due to Low Autostop Oil Pressure

EVENT DATE:

January 17, 1995

REPORT DUE DATE:

February 16, 1995

REFERENCES:

Significant Occurrence Reports (SOR's) 95-33, 95-45, A and B Station Administrative Order (SAO) 132 Event Report No. 95-01

PAST SIMILAR EVENT:

None

DESCRIPTION OF OCCURRENCE:

One January 17, 1995 at 0039 hours, with the unit operating at 89% power, a turbine trip occurred due to low autostop oil pressure. Since the reactor power was above the P-8 turbine/reactor trip interlock setpoint of 20% power, the turbine trip caused a reactor trip. No plant conditions were in existence at the time that would have required a turbine autostop oil trip. During the trip, a half group quick open signal was generated as designed for six of the high pressure steam dump valves to the main condenser, resulting in rapid cooling of the reactor coolant system (RCS). While this cooldown was greater expected, it was within design limits and technical specifications. Manual operator action was taken to start a second charging pump and secure feedwater to the steam generators to restore RCS pressures, levels and temperatures. Otherwise, the plant's response to the transient including an automatic actuations occurred as expected.

On January 19, 1995 at 0812 hours, during startup with the unit operating at 16% power, a turbine trip occurred due to high steam generator level. This caused an automatic feedwater isolation which includes the automatic actuation of a feedwater pumps. The reactor did not trip because reactor power was below the P-8 turbine/reactor trip interlock setpoint of 20% power. Reactor power was stabilized at 6% power.

TEXT PAGE 3 OF 4

ANALYSIS OF OCCURRENCE:

This report is being made because an actuation of the Reactor Protection System (RPS) occurred on January 17, 1995 and because an actuation of the A Feedwater Pumps occurred on January 17 and 19, 1995. These actuations are reportable under 10 CFR 50.73(a)(2)(iv). There were no adverse safety implications for this event.

Following the turbine/reactor trip on January 17, 1995, the plant experienced a greater than expected cooldown of the reactor coolant system. This greater than expected cooldown is attributed to the high pressure steam dump valves being open longer than required. In response to this cooldown, manual operator action was taken to start a second charging pump and secure main feedwater to the steam generators to restore RCS pressures, levels and temperatures.

CAUSE OF OCCURRENCE:

The cause of the low autostop oil pressure on January 17 was determined to be a solenoid valve which had a degraded pilot seat. This valve is an ASCO pilot assisted solenoid valve which is installed as an autostop oil valve (ASB-20) and is normally de-energized closed. On a demand trip signal, this valve energizes open and dumps autostop oil, causing the autostop oil low pressure trip to effect a main turbine trip. The solenoid inadvertently opened when degradation of the cast urethane seat for the pilot orifice permitted sufficient oil leakage to inadvertently open the valve. The degradation of the urethane seat resembled a concavity, hemispherical in shape, about 1 millimeter in diameter just off center of the seat concavity for the pilot orifice.

As indicated above, the cause of the greater than expected plant cooldown appears to be the slower than expected closure of the high pressure steam dump valves.

The cause of the high steam generator level on January 19 was a cognitive personnel error in controlling feedwater. During the period prior to the trip, a licensed reactor operator was controlling steam generator level

manually in accordance with procedure using the low flow bypass feedwater regulating valves getting ready to transfer to the feedwater regulating valves. His attempt to decrease feedwater flow in response to increasing steam generator water levels was not accomplished in sufficient time to preclude reaching the trip setpoint.

TEXT PAGE 4 OF 4

CORRECTIVE ACTION:

A post trip review was completed and a meeting of the Station Nuclear Safety Committee was held on January 17, 1995 to review the trip, its cause and the follow-up actions. It was concluded that the actions taken during and following the trip were adequate and appropriate.

The failed solenoid valve was sent to the manufacturer for analysis. The failure analysis report indicated that the degradation of the urethane seat was attributed to the hydrolysis of the cast urethane seat. Hydrolysis is the chemical decomposition of a substance when it interacts with moisture. However in this case, the degradation was evident in a relatively moisture free environment. Subsequent investigation has identified similar problems with this cast urethane seat at other utilities and industries and that the pilot seat material for this kind of valve is being changed.

By the end of the 1995 Refueling Outage the station will complete its evaluation of corrective actions for solenoid valves that utilize cast urethane pilot seats.

During the 1995 refueling outage, the high pressure steam dump control setting will be reviewed and adjusted as necessary to limit post trip cooling events.

The January 19, 1995, high steam generator level event will be reviewed with all operators during a future training cycle in 1995.

ATTACHMENT TO 9503030196 PAGE 1 OF 1

Stephen E. Quinn
Vice President

Consolidated Edison Company of New York, Inc.
Indian Point Station
Broadway & Bleakley Avenue February 16, 1995
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Telephone (914) 734-5340 Re: Indian Point Unit No. 2

Docket No. 50-247 Docket No. 50-247
LER 95-01-00

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

The attached Licensee Event Report LER 95-01-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Attachment

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